What is claimed is:

1.   An electro-optical element (1), in particular organic electro-optical element, preferably organic light-emitting diode, comprising a substrate (2) and at least one electro-optical structure (4) which comprises an active layer with at least one organic, electro-optical material (61), the substrate having at least one antireflection coating (8, 10) with at least one layer, wherein the antireflection coating (8, 10) layer has a thickness and a refractive index for which the integral reflectivity at the boundary faces of the antireflection coating is minimal for light beams emerging from the active layer at all angles for a wavelength in the spectral region of the emission spectrum, or for which the integral reflectivity is at most 25% higher than the minimum.

2.   The electro-optical element (1), in particular as claimed in claim 1, comprising a substrate (2) and at least one electro-optical structure (4) which comprises an active layer with at least one organic, electro-optical material (61), the substrate having at least one antireflection coating (8, 10) with at least one layer, wherein the thickness of the coating and the refractive index of the antireflection coating are selected such that the integral of the reflectivity of the antireflection coating

1) $$I(n_1, n_2, n_3, d) = \int_{0}^{\pi/2} R(n_1, n_2, n_3, d, \theta) \sin(\theta) d\theta$$

is minimal or deviates from the minimum value by 25% at most, n_2 designating the refractive index of the antireflection coating (10), n_1 and n_3 designating the refractive indices of

the media which adjoin the   antireflection coating (10),
θ designating the angle of the emitted light with respect to
the perpendicular to the boundary face of the antireflection
coating facing the emitter, and d designating the coating
5   thickness of the antireflection coating, and the following
being stipulated for the reflectivity R(n_1, n_2, n_3, d, θ):

2) $$R(n_1, n_2, n_3, d, \theta) = \frac{R_{TE} + R_{TM}}{2}, \text{ where}$$

10 3) $$R_{TE} = \frac{r^2_{12} + r^2_{23} + 2r_{12}r_{23}\cos(2\beta)}{1 + r^2_{12}r^2_{23} + 2r_{12}r_{23}\cos(2\beta)}, \text{ where}$$

3a) $$r_{12} = \frac{n_1 \cos(\alpha_1) - n_2 \cos(\alpha_2)}{n_1 \cos(\alpha_1) + n_2 \cos(\alpha_2)}, \text{ and}$$

3b) $$r_{23} = \frac{n_2 \cos(\alpha_2) - n_3 \cos(\alpha_3)}{n_2 \cos(\alpha_2) + n_3 \cos(\alpha_3)}, \text{ or}$$

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4) $$R_{TM} = \frac{r^2_{12} + r^2_{23} + 2r_{12}r_{23}\cos(2\beta)}{1 + r^2_{12}r^2_{23} + 2r_{12}r_{23}\cos(2\beta)}, \text{ where}$$

4a) $$r_{12} = \frac{n_2 \cos(\alpha_1) - n_1 \cos(\alpha_2)}{n_2 \cos(\alpha_1) + n_1 \cos(\alpha_2)}, \text{ and}$$

20 4b) $$r_{23} = \frac{n_3 \cos(\alpha_2) - n_2 \cos(\alpha_3)}{n_3 \cos(\alpha_2) + n_2 \cos(\alpha_3)}, \text{ and where}$$

5) $$\beta = \frac{2\pi}{\lambda_0} n_2 d \cos(\alpha_2) \text{ applies, and where}$$

-    the angle $\alpha_1 = \theta$ designates the angle measured
with respect to the perpendicular to the boundary face, of a
light beam which is incident on the antireflection coating,

-    the angle α_2 designates the angle measured with respect
to the perpendicular to the boundary face of the light beam
which is refracted at the boundary face between the medium
with the refractive index n_1 and the antireflection coating
and which travels in the antireflection coating,

-    the angle α_3 designates the angle of the light beam
which is refracted once more at the opposite boundary face
with respect to the medium with the refractive index n_3 and
travels in this medium, and

-    λ_0 designates the wavelength of the light in the vacuum.

3.   The element, in particular as claimed in one of the
preceding claims, wherein the antireflection coating (8, 10)
layer has a thickness and a refractive index for which the
reflectivity, which is integrated over all the angles of the
light beams emerging from the active layer and the
wavelengths of the spectral region of the emitted radiation
and which is weighted with the spectral intensity
distribution, at the boundary faces of the antireflection
coating (8, 10), is minimal or at most 25 percent, preferably
15 percent, particularly preferably 5 percent, higher than
the minimum.

4.   The element as claimed in one of the preceding claims,
wherein the antireflection coating layer has a refractive
index $n_2(\lambda)$ and a thickness d, in which the integral:

$$I\left(n_1(\lambda), n_2(\lambda), n_3(\lambda), d\right) = \int\limits_{\lambda_1}^{\lambda_2} \int\limits_{0}^{\pi/2} S(\lambda) \cdot R\left(n_1(\lambda), n_2(\lambda), n_3(\lambda), d, \theta\right) \sin(\theta) d\theta d\lambda$$

is minimal, or at most   25 percent, preferably
15 percent, particularly preferably 5 percent, higher than
the minimum, S(λ) designating the spectral intensity
distribution function, V(λ) the spectral sensitivity of the
5   eyes, R(n$_1$(λ), n$_2$(λ), n$_3$(λ), d, θ) designating the
reflectivity as a function of the emission angle θ, coating
thickness d and the wavelength-dependent refractive index
n$_2$(λ) of the antireflection coating and of the adjacent
media, n$_1$(λ), n$_3$(λ), and λ$_1$ and λ$_2$ designating the boundaries
10 of the emission spectrum.

5.   The element as claimed in one of the preceding claims,
wherein the antireflection coating (8, 10) layer has a
thickness and a refractive index for which the reflectivity,
15 which is integrated over all the angles of the light beams
emerging from the active layer and the wavelengths of the
spectral range of the emitted radiation and is weighted with
the spectral intensity distribution and the spectral
sensitivity of the eyes, at the boundary faces of the
20 antireflection coating (8, 10) is minimal, or at most
25 percent, preferably 15 percent, particularly preferably
5 percent, higher than the minimum.

6.   The element as claimed in one of the preceding claims,
25 wherein the antireflection coating layer has a refractive
index n$_2$(λ) and a thickness d, in which the integral:

$$I\big(n_1(\lambda), n_2(\lambda), n_3(\lambda), d\big) = \int\limits_{\lambda_1}^{\lambda_2} \int\limits_{0}^{\pi/2} S(\lambda) \cdot V(\lambda) \cdot R\big(n_1(\lambda), n_2(\lambda), n_3(\lambda), d, \theta\big) \sin(\theta)\, d\theta\, d\lambda$$

is minimal, or at most 25 percent, preferably 15 percent,
30 particularly preferably 5 percent, higher than the minimum,

S(λ) designating the spectral intensity distribution function, V(λ) the spectral sensitivity of the eyes, R(n$_1$(λ), n$_2$(λ), n$_3$(λ), d, θ) designating the reflectivity as a function of the emission angle θ, coating thickness d and the wavelength-dependent refractive index n$_2$(λ) of the antireflection coating and of the adjacent media, n$_1$(λ), n$_3$(λ), and λ_1 and λ_2 designating the boundaries of the emission spectrum.

7. The element as claimed in one of the preceding claims, wherein the at least one electro-optical structure (4) comprises a first conductive layer (41) and a second conductive layer (42) between which an active layer (6), which comprises the at least one organic, electro-optical material (61), is arranged.

8. The element as claimed in claim 7, wherein the first and/or second conductive layers are at least partially transparent.

9. The element as claimed in one of the preceding claims, characterized in that the substrate comprises glass, in particular calcium-sodium glass, a glass ceramic and/or plastic and/or barrier-coated plastic and/or combinations thereof.

10. The element as claimed in one of the preceding claims, characterized in that the at least one antireflection coating (8, 10) comprises a plurality of layers.

11. The element as claimed in claim 10, wherein the layers (81, 83, 85, 101, 103, 105) have different refractive

indices.

12. The element as claimed in claim 10 or 11, wherein the
antireflection coating (8, 10) has three layers (81, 83, 85,
101, 103, 105).

13. The element as claimed in claim 12, wherein the layers
are arranged, starting from the substrate, in a layer
sequence of a layer with a medium refractive index (81, 101)
/ layer with a high refractive index (83, 103) / layer with a
low refractive index (85, 105).

14. The element as claimed in one of claims 10 to 13, in
which the antireflection coating (10) has at least two
layers, and one of the conductive layers (41, 42) is adjacent
to the antireflection coating (10), wherein the conductive
layer (41, 42) has a refractive index which is less than the
refractive indices of the at least two layers of the
antireflection coating (10).

15. The element as claimed in one of the preceding claims,
wherein the antireflection coating (8, 10) has at least one
of the following materials: titanium oxide, tantalum oxide,
niobium oxide, hafnium oxide, aluminum oxide, silicon oxide,
magnesium nitride.

16. The element as claimed in one of the preceding claims,
wherein the at least one antireflection coating (10) is
arranged on the side (22) of the substrate (2) on which the
at least one electro-optical structure (4) is applied.

17. The element as claimed in one of the preceding claims,
wherein at least one adaptation coating (5) is arranged

between the antireflection   coating (8) and electro-
optical structure (4).

18. The element as claimed in one of the preceding claims,
defined by at least one antireflection coating on the side
(21) of the substrate (2) which is opposite the side (22) on
which the at least one electro-optical structure (4) is
arranged.

19. The element as claimed in one of the preceding claims,
wherein the at least one antireflection coating (8, 10)
comprises an AMIRAN® coating.
20. The element (1) as claimed in one of the preceding
claims, wherein the antireflection coating (10) has light-
scattering structures (7).

21. The element as claimed in claim 20, wherein the light-
scattering structures (7) comprise crystal, particles or
occlusions in the antireflection coating (10).

22. The element as claimed in one of the preceding claims,
defined by a structured boundary face with light-scattering
structures between the antireflection coating and substrate.

23. The element as claimed in one of the preceding claims,
defined by an additional layer (11) with light-scattering
structures (7).

24. The element as claimed in claim 23, wherein the
additional coating (11) has a refractive index which
corresponds essentially to the refractive index of the
substrate, and the additional layer (11) is arranged on the
substrate (2).

25.   A method for manufacturing an organic, electro-optical
element (1), in particular an organic, electro-optical
element as claimed in one of claims 1 to 14, comprising the
5   steps:
-      coating at least one side (21, 22) of a substrate (2)
with an antireflection coating (8, 10),
and
-      applying at least one electro-optical structure (4),
10   which comprises at least one organic, electro-optical
material (61), where the substrate is coated with an
antireflection coating (8, 10) which has at least one layer
with a thickness and a refractive index for which the
integral reflectivity at the boundary faces of the
15   antireflection coating (10) for light beams emerging for all
angles in the active layer and for a wavelength in the
spectral range of the emitted light is minimal or for which
the integral reflectivity is at most 25 percent higher than
the minimum.
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26.   The method as claimed in claim 25, wherein the step of
applying at least one electro-optical structure (4) comprises
the steps:
-      applying a first conductive layer (41),
25   -   applying at least one active layer (6), which comprises
the at least one organic, electro-optical material (61), and
-      applying a second conductive layer (42).

27.   The method as claimed in claim 25 or 26, wherein the
30   step of coating at least one side (21, 22) of a substrate (2)
with an antireflection coating (8, 10) comprises the step of
coating with an antireflection coating (8, 10) which has a
plurality of layers (81, 83, 85, 101, 103, 105), in

particular three layers.

28. The method as claimed in one of the preceding claims, wherein the step of coating at least one side (21, 22) of a substrate (2) with an antireflection coating (8, 10) comprises the steps:
-    applying a layer with a medium refractive index (81, 101),
-    applying a layer with a high refractive index (83, 103), and
-    applying a layer with a low refractive index (85, 105).

29. The method as claimed in one of the preceding claims, wherein the substrate (2) is coated with an antireflection coating (10) which has light-scattering structures (7).

30. The method as claimed in claim 29, wherein an antireflection coating (10) is applied which contains crystals, particles or occlusions which have a refractive index or orientation which differs from that of the surrounding material.

31. The method as claimed in one of the preceding claims, wherein an additional layer (11) with light-scattering structures (7) is applied.

32. The method as claimed in claim 31, wherein the additional layer has a refractive index which corresponds essentially to the refractive index of the substrate, and the additional layer (11) is applied to the substrate.

33. The method as claimed in one of the preceding claims, wherein the antireflection coating (10) is applied to a

structured side (22) of the   substrate (2).

34. The method as claimed in one of the preceding claims,
wherein the antireflection coating (10) is applied to a
5   roughened side (22) of the substrate (2).

35. The method as claimed in one of the preceding claims,
wherein the antireflection coating is applied to a side (22)
of the substrate (2) which is provided with regular
10   structures.

36. The method as claimed in one of the preceding claims,
wherein at least one adaptation coating (5) is applied to the
antireflection coating (8).

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37. The method as claimed in one of the preceding claims,
wherein the at least one antireflection coating (8, 10) and
the at least one electro-optical structure (4) are applied to
opposite sides (21, 22) of the substrate (2).

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38. The method as claimed in one of the preceding claims,
wherein antireflection coatings (8, 10) are applied to each
side of the substrate (2).

25   39. The method as claimed in one of the preceding claims,
wherein the step of coating at least one side (21, 22) of a
substrate (2) with an antireflection coating (8, 10) is
carried out with vacuum coating, in particular physical vapor
deposition (PVD) or sputtering, chemical deposition from the
30   gas phase (CVD), thermally or plasma-enhanced chemical vapor
deposition (PECVD) or plasma impulse chemical vapor
deposition (PICVD), or by means of Sol-gel coating,
immersion, spray or centrifugal coating.

40. The method as claimed in one of the preceding claims, wherein the thickness and the refractive index of the layer for which the integral reflectivity at the boundary faces of the antireflection coating (10) for all the light beams emerging for all angles in the active layer and for a wavelength in the spectral region of the emitted light is minimal or for which the integral reflectivity is at most 25 percent higher than the minimum, are calculated, in particular calculated numerically.

41. A substrate having an antireflection coating, in particular transparent glass substrate or plastic substrate, in which the antireflection coating is manufactured with a method as claimed in one of claims 25 – 40 or is constructed in accordance with a substrate for an electro-optical element as claimed in one of claims 1 to 24.

42. A substrate having an antireflection coating with at least one layer, in particular substrate of an electro-optical element as claimed in one of claims 1 – 24 or 41, or manufactured with a method as claimed in one of claims 25 to 40, wherein the antireflection coating layer, preferably all the layers of the antireflection coating, have an optical thickness of at least 3/8 of a wavelength of the transmission spectrum or emission spectrum, preferably at least of half a wavelength.

43. An optical device, in particular lens, spectacle glass, prism, optical filter, pane, particularly window for aircraft, ships or vehicles, or lighting element, comprising a substrate as claimed in claim 41 or 42.

44. The use of an   antireflected substrate, in
particular glass substrate (2) with an antireflection coating
(8, 10) with at least one layer which has a thickness and a
refractive index for which the integral reflectivity at the
boundary faces of the antireflection coating for light beams
emerging at all angles from an imaginary emitter in the
active layer and for a wavelength in the spectral range of
the emission spectrum is minimal, or for which the integral
reflectivity is at most 25 percent higher than the minimum,
-    as a carrier for an organic, electro-optical element
(1), in particular an organic, light-emitting diode, or
-    as an optical element, in particular a lens or a prism,
or
-    as a pane, in particular as a window pane for a building
or for vehicles.

45. The use of an antireflected glass substrate (2) having
an antireflection coating with light-scattering structures as
a carrier for an organic, electro-optical element (1), in
particular an organic, light-emitting diode.

46. The use of an antireflected substrate, in particular a
glass substrate (2) as claimed in claim 44 or 45, wherein the
glass substrate (2) comprises AMIRAN® glass.